

U.S. Patent Application No. 09/901,188
Amendment dated November 22, 2005
Reply to Office Action of July 22, 2005

REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested.

In the amendment, claim 1 has been amended to include the subject matter of claims 3 and 4. New claim 20 has been added. Claims 3 and 4 have been amended to be dependent on claim 20. Support for the amendment is found throughout the present specification, the figures, and the claims as originally filed. For example, see Figures 1 and 2. Accordingly, no questions of new matter should arise and entry of this amendment is respectfully requested.

The undersigned and the applicants appreciate the interview between Examiner Thangavelu and Mr. Singh on November 15, 2005. In the interview, the amendment to claim 1 was discussed as presented herein and further, the subject matter of new claim 20 was discussed. In addition, in the interview, the differences between the claimed invention and the cited art were discussed, including the embodiment that can use a graphical user interface and PLC component icon(s) to select and design the PLC and computing the various parameters of the design system and displaying them on the screen.

Rejection of claims 1-2, 6-9, 11, and 16-17 under 35 U.S.C. §102(e) over Coburn et al.

At page 2, the Examiner rejected claims 1-2, 6-9, 11, and 16-17 under 35 U.S.C. §102(e) as being anticipated by Coburn et al. (U.S. Patent No. 6,618,856). The Examiner asserted that Coburn et al. teaches a PLC system construction support tool for simulating a selection of units and a combination thereof on a screen before a PLC system is actually constructed. As alleged by the Examiner, the teachings of Coburn et al. include: a first screen for displaying a list of various units which can be selected for constructing a PLC system, and a second screen for

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displaying the units selected from the first screen in the same configuration as the units would actually be disposed in the PLC system, the second screen being disposed adjacent to the first screen. For the following reasons, this rejection is respectfully traversed.

As explained to the Examiner in the interview, the cited art does not relate to a construction support tool for designing a PLC system. In addition, claim 1 now recites that the PLC system construction support tool includes a unit type data file storing at least one of the current consumption, the voltage consumption, the width, and/or the weight of each of the units displayed on the first screen. Claim 1 further recites that the second screen displays the information in numerical form in an area adjacent to the row of the units on the second screen. The cited art does not teach or suggest these features. In addition, Coburn et al. does not teach or suggest a PLC system construction support tool which includes a list that comprises at least one graphical icon that is selectable and adapted to display the second screen.

Coburn et al. generally relates to improvements in computer systems, and more particularly, to system software for managing the design, simulation, implementation and maintenance of a manufacturing process (see, col. 1, lines 26-30). However, in the present invention, independent claim 1 relates to a Programmable Logic Controller (PLC) system construction support tool. Coburn et al. uses a PLC system in a manufacturing process, and does not relate to manufacturing a PLC system itself. Accordingly, Coburn et al. does not teach or suggest a PLC system construction support tool.

Since Coburn et al. does not teach or suggest a PLC system construction support tool, then Coburn et al. clearly would not teach or suggest a tool comprising a first screen that displays various units making up a PLC system. Accordingly, claims 1-2, 6-9, 11, and 16-17 are not anticipated by, and would not have been obvious over, Coburn et al.

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Moreover, Coburn et al. describes a designer studio window including a resources panel 710, a timing diagram panel 720, a control resources window 730, and an undefined panel map 750 labeled "control resources" in Fig. 7 (see, col. 110, lines 15-35; Fig. 7; Fig. 8). Even if the resources panel 710 were considered to describe a first screen of the present claimed invention, Coburn et al. fails to teach or suggest "a second screen for displaying the units selected from the first screen in the same configuration as the units would be disposed in the PLC system, the second screen being disposed adjacent to the first screen" as presently claimed. In particular, the machine editor, as described in Coburn et al., to allow a user to build a floor plan image directly on a computer monitor (see Figs. 29, 30, 31; column 129, line 11 through column 130, line 48) is not comparable to the presently claimed second screen. For example, there is no teaching or suggestion in Coburn et al. where a designer studio window is disposed adjacent a machine editor window. Accordingly, claims 1-2, 6-9, 11, and 16-17 are not anticipated by, and would not have been obvious over, Coburn et al. for this additional reason.

The arguments regarding Coburn et al. as pertaining to claim 1 equally apply to new claim 20 and dependent claims 2, 6-9, and 11, and to independent claim 16 and dependent claim 17. Accordingly, the rejection should be withdrawn.

Rejection of claim 3-5, 10, and 18-19 under 35 U.S.C. § 103(a) over Coburn et al. in view of Moore.

At page 7 of the Office Action, the Examiner rejected claims 3-5, 10, and 18-19 under 35 U.S.C. § 103(a) as being unpatentable over Coburn et al. (U.S. Patent No. 6,618,856) in view of Moore (U.S. Patent No. 6,640,264). The Examiner conceded that Coburn et al. does not expressly teach the information comprising total values of at least one of current consumption,

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voltage consumption, width, and weight of each of the units displayed on the second screen. The Examiner alleged that Moore teaches the information comprising total values of at least one of current consumption, voltage consumption, width, and weight of each of the units displayed on the second screen, on the alleged grounds that PLC systems often process discrete incremental states representing non discrete intermediate values of voltage, current, weight, etc. from electromechanical sensors and use them for logic based control of voltage, current, weight, etc. of electromechanical devices. The Examiner then concluded that it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to combine the teachings of Coburn et al. with Moore. For the following reasons, this rejection is respectfully traversed.

As explained in the interview, the presently claimed invention relates to a PLC system construction support tool simulating a selection of units and a combination thereof on a screen before the PLC system is actually constructed, and thus there are no "discrete incremental states representing non discrete intermediate values of voltage, current weight, etc." for the claimed PLC to process. Accordingly, the Examiner's argument is inapplicable to the claimed invention. Further, Moore does not relate to a PLC system construction support tool; Moore relates to an embodiment of the PLC. Therefore, the combination of Coburn et al. with Moore does not teach or suggest the information comprising total values of at least one of current consumption, voltage consumption, width, and weight of each of the units, and also does not overcome the deficiencies of Coburn et al.

Therefore, claims 3-5, 10, and 18-19 would not have been obvious under 35 U.S.C. § 103(a) over Coburn et al. in view of Moore, and the rejection should be withdrawn.

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Rejection of claim 12 under 35 U.S.C. § 103(a) over Coburn et al. in view of Takase

At page 14 of the Office Action, the Examiner rejected claim 12 under 35 U.S.C. § 103(a) as being unpatentable over Coburn et al. in view of Takase (U.S. Patent No. 6,381,501). The Examiner alleged that Takase teaches that the specific unit is a CPU unit, on the alleged grounds that as per Coburn et al., present industrial PLC systems are implemented using computer processors, which simulate the parallel operation of the relay-like structures of the PLCs by employing extremely fast processors. The Examiner then concluded that it would have been obvious to one having ordinary skill in the art, at the time the invention was made, to combine the tool of Coburn et al. with the tool of Takase that included the specific unit being a CPU unit. The Examiner alleged that one would have been motivated because industrial PLC systems would be implemented using computer processors, which simulated the parallel operation of the relay-like structures of the PLCs by employing extremely fast processors. For the following reasons, this rejection is respectfully traversed.

The deficiencies of Coburn et al., as described above, apply equally here. Takase relates to a data logging apparatus which can raise the precision in data collection, make maintenance of the apparatus easier, and furthermore can improve the work efficiency, reduce the work load to the user program, improve the workability, reduce the work load to the PLC, and improve expandability of the FAC (*see* col. 3, line 66 through col. 4, line 5). Takase does not relate to a PLC system construction support tool and therefore, does not overcome the failure of Coburn et al. to teach or suggest a PLC system construction support tool and the combination of Coburn et al. with Takase does not teach or suggest the claimed invention. Therefore, claim 12 would not have been obvious under 35 U.S.C. § 103(a) over Coburn et al. in view of Takase, and the rejection should be withdrawn.

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Rejection of claim 13 under 35 U.S.C. § 103(a) as being unpatentable over Coburn et al. in view of Kar et al.

Also at page 14 of the Office Action, claim 13 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Coburn et al. in view of Kar et al. (U.S. Patent No. 6,405,745). The Examiner relied on Kar et al. for the purpose of asserting that the specific unit can be a power supply unit and that it would be obvious to combine this power supply unit with Coburn et al. For the following reasons, this rejection is respectfully traversed.

The deficiencies of Coburn et al., as described above, apply equally here. Kar et al. does not relate to a PLC system construction support tool. Kar et al. relates to injection of a precise quantity of gas into a system (*see* col. 1, lines 5-7). Kar et al. does not relate to a PLC system construction support tool and therefore, does not overcome the failure of Coburn et al. to teach or suggest a PLC system construction support tool. The combination of Coburn et al. with Kar et al. therefore does not teach or suggest the claimed invention. Moreover, the two references are not combinable, since they relate to completely different technologies. Therefore, claim 13 would not have been obvious under 35 U.S.C. § 103(a) over Coburn et al. in view of Kar et al., and the rejection should be withdrawn.

Rejection of claim 14 under 35 U.S.C. § 103(a) over Coburn et al. in view of Wang

At page 15 of the Office Action, claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Coburn et al. in view of Wang (U.S. Patent No. 6,401,159). The Examiner relied on Wang et al. for allegedly showing a second placement unit for automatically displacing a repeater unit at each of the termination of a first row and the beginning of a second row when

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the units displayed on the second screen are disposed on the first row and the second row. For the following reasons, this rejection is respectfully traversed.

The deficiencies of Coburn et al., as described above, apply equally here. Wang relates to a method and device for half-duplex serial signal control with multibaud rates and multiconfigurations and, more specifically to a method and a device for half-duplex serial signal control with multiple baud rates and multiple configurations used on a network along at least one computer and other equipments from different manufacturers and using different communication speeds (*see* column 1, lines 6-13). Wang does not relate to a PLC system construction support tool and therefore, does not overcome the failure of Coburn et al. to teach or suggest a PLC system construction support tool. The combination of Coburn et al. with Wang therefore does not teach or suggest the claimed invention. Therefore, claim 14 would not have been obvious under 35 U.S.C. § 103(a) over Coburn et al. in view of Wang, and the rejection should be withdrawn.

Rejection of claim 15 under 35 U.S.C. § 103(a) over Coburn et al. in view of Okada

At page 16 of the Office Action, claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Coburn et al. in view of Okada (U.S. Patent No. 6,184,880). The Examiner relied on Okada for showing a third placement unit for automatically displaying an end unit at the termination of a row of units displayed on the second screen. For the following reasons, this rejection is respectfully traversed.

The deficiencies of Coburn et al., as described above, apply equally here. Coburn et al. fails to teach a third placement unit as presently claimed. Okada fails to teach a third placement unit for automatically displaying an end unit at the end of the termination of row of the units displayed on a second screen. Okada does not relate to building a PLC system construction

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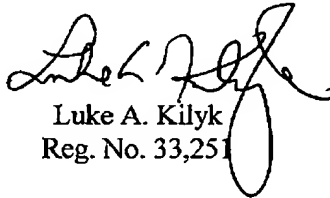
support tool and therefore, does not overcome the failure of Coburn et al. to teach or suggest a PLC system construction support tool. Okada relates to a device for automatically operating a GUI (Graphical User Interface) for the purpose of usability evaluation or operational testing of a system having a GUI or generation of an operation macro thereof and to an operation macro execution device for executing the operation macro of the system (*see* col. 1, lines 6-11). Therefore, the combination of Coburn et al. with Okada does not teach or suggest the claimed invention. Therefore, claim 15 would not have been obvious under 35 U.S.C. § 103(a) over Coburn et al. in view of Wang, and the rejection should be withdrawn.

CONCLUSION

In view of the foregoing remarks, the applicants respectfully request the reconsideration of this application and the timely allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 50-0925. If a fee is required for an extension of time under 37 C.F.R. §1.136 not accounted for above, such extension is requested and should be charged to said Deposit Account.

Respectfully submitted,



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